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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

RAO, ANAND SHASHIKANT

ART UNIT

PAPER NUMBER

2613

DATE MAILED: 01/15/2004

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/608,989

Applicant(s)

ACHARYA ET AL.

Examiner

Andy S. Rao

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 October 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6,8-13 and 15-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) 1-6,8-13 and 15-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 8-10.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

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DETAILED ACTION

Response to Amendment

1. As per the Applicants' instructions filed in Paper 12 on 10/20/03, claims 7, 14, and 21 have been canceled.
2. Applicant's arguments filed in Paper 12 on 10/20/03 with respect to claims 1-6 currently rejected under 35 U.S.C. 102(b) as being anticipated by Dachiku et al., (hereinafter referred to as "Dachiku"), of claims 8-13 currently rejected under 35 U.S.C. 103(a) as being unpatentable over Dachiku et al., (hereinafter referred to as "Dachiku") in view of Kang, and of claims 15-20 currently rejected under 35 U.S.C. 103(a) as being unpatentable over Dachiku et al., (hereinafter referred to as "Dachiku") in view of Kang and further in view of Szeliski et al., (hereinafter referred to as "Szeliski"), as set forth in the previous Office Action of Paper 7 as mailed on 4/16/03 have been fully considered but they are not persuasive.

The Applicants' argue that Dachiku fails to disclose "estimating the spatio-temporal rates of the feature points..." as in the claims (Paper 12, page 7, lines 22-27). The Examiner strongly disagrees. It is firstly noted that luminance is intensity, or as defined by the Websters II New Riverside University Dictionary as: The luminous *intensity* per unit projected area of a given surface as viewed from a given direction. Accordingly, detecting shifts along the luminance scale is a change or reads on estimating the spatio-temporal rates since that shift is along a luminance scale and a two-dimensional surface. Furthermore, as for the feature points, the Examiner notes that the "vertices" of the triangles read on this limitation as a geometrical definition of a certain type of point. Accordingly, the Examiner maintains the rejections.

A detailed rejection addressing the newly added limitations for claims 5-6 and 12-13, and 19-20 follows below, whereas the rejections of claims 1-4, 8-11, 15-18 remains in effect from the previous Office Action of Paper 7 mailed on 4/16/03.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 5-6 are rejected under 35 U.S.C. 102(b) as being anticipated by Dachiku et al., (hereinafter referred to as “Dachiku”).

Dachiku discloses a method of video coding the movement of a face from a sequence of images, comprising: coding the head (Dachiku: column 10, lines 60-65) from at least one of the images based (Dachiku: column 11, lines 40-45), at least in part, on a limited number of selected features points (Dachiku: column 10, lines 45-50) employing a three dimensional based coding technique to produce a three dimensional (3D) model (Dachiku: column (Dachiku: column 11, lines 40-45); and estimating the movement of the head in the other images of the sequence using the 3D model of the head, wherein the movement of the head is an estimated as translation and rotations based on at least in part of estimates of spatio-temporal rates of change in intensity at the selected feature points (Dachiku: column 10, lines 10-15) as in claim 5.

Regarding claim 6, Dachiku discloses treating the 3D model as a rigid body (Dachiku: column 11, lines 1-7), as in the claim.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 12-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dachiku et al., (hereinafter referred to as “Dachiku”) in view of Kang.

Dachiku discloses a system of video coding the movement of a face from a sequence of images, comprising: coding the head (Dachiku: column 10, lines 60-65) from at least one of the images based (Dachiku: column 11, lines 40-45), at least in part, on a limited number of selected features points (Dachiku: column 10, lines 45-50) employing a three dimensional based coding technique to produce a three dimensional (3D) model (Dachiku: column (Dachiku: column 11, lines 40-45); and estimating the movement of the head in the other images of the sequence using the 3D model of the head, wherein the movement of the head is an estimated as translation and rotations based on at least in part of estimates of spatio-temporal rates of change in intensity at the selected feature points (Dachiku: column 10, lines 10-15) as in claim 12. However, Dachiku fails to disclose an imager and computing platform being coupled to communicate electronically, wherein said computing platform being adapted so that, in operation, the movement of a face from a sequence of images is coded, as in claim 12. Kang discloses an imager (Kang: column 3, lines 20-40) and computing platform being coupled to communicate electronically (Kang: column 3, lines 45-60), wherein said computing platform being adapted so

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that, in operation, the movement of a face from a sequence of images is coded (Kang: column 4, lines 60-67) with the added advantage of a hands-free navigation system (Kang: column 3, lines 29-31). Accordingly, given this teaching, it would have been obvious for one of ordinary skill in art to modify Dachiku's system by implementing it on the imager and computing platform of Kang in order to achieve a hands-free navigational capacity. The Dachiku system, now implemented on the imager and computing platform of Kang has all of the features of claim 12.

Regarding claim 13, the Dachiku system, now implemented on the imager and computing platform of Kang discloses treating the 3D model as a rigid body (Dachiku: column 11, lines 1-7), as in the claim.

7. Claims 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dachiku et al., (hereinafter referred to as "Dachiku") in view of Kang and further in view of Szeliski et al., (hereinafter referred to as "Szeliski").

Dachiku discloses a system of video coding the movement of a face from a sequence of images, comprising: coding the head (Dachiku: column 10, lines 60-65) from at least one of the images based (Dachiku: column 11, lines 40-45), at least in part, on a limited number of selected features points (Dachiku: column 10, lines 45-50) employing a three dimensional based coding technique to produce a three dimensional (3D) model (Dachiku: column (Dachiku: column 11, lines 40-45); and estimating the movement of the head in the other images of the sequence using the 3D model of the head, wherein the movement of the head is an estimated as translation and rotations based on at least in part of estimates of spatio-temporal rates of change in intensity at the selected feature points (Dachiku: column 10, lines 10-15) as in claim 19. However, Dachiku fails to disclose an imager and computing platform being coupled to communicate

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electronically, and an article comprising a storage medium having stored instructions thereon, which when executed by the computing platform result in the movement of a face from a sequence of images being coded, in claim 19. Kang discloses an imager (Kang: column 3, lines 20-40) and computing platform being coupled to communicate electronically (Kang: column 3, lines 45-60), wherein said computing platform being adapted so that, in operation, the movement of a face from a sequence of images is coded (Kang: column 4, lines 60-67) with the added advantage of a hands-free navigation system (Kang: column 3, lines 29-31). Accordingly, given this teaching, it would have been obvious for one of ordinary skill in art to modify Dachiku's system by implementing it on the imager and computing platform of Kang in order to achieve a hands-free navigational capacity. The Dachiku system, now implemented on the imager and computing platform of Kang has a majority of the features of claim 19. However, the Dachiku-Kang combination fails to address having an article comprising a storage medium having stored instructions thereon, which when executed by the computing platform result in the movement of a face from a sequence of images being coded. Szeliski discloses an article comprising a storage medium having stored instructions thereon (Szeliski: column 8, lines 25-35), which when executed by the computing platform result in the movement of a face from a sequence of images being coded in order to efficiently produce parameter motion models (Szeliski: column 10, lines 25-65). Accordingly, given this teaching, it would have been obvious for one of ordinary skill in the art to further incorporate the Szeliski article comprising a storage medium having stored instructions thereon with the Dachiku-Kang combination in order to efficiently produce parameter motion models for the Dachiku system (Dachiku: column 20, lines 15-25). The Dachiku system, now implemented on the imager and computing platform of Kang and the

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Szeliski article comprising a storage medium having stored instructions thereon, has all of the features of claim 19.

Regarding claim 20, the Dachiku system, now implemented on the imager and computing platform of Kang and the Szeliski article comprising a storage medium having stored instructions thereon discloses treating the 3D model as a rigid body (Dachiku: column 11, lines 1-7), as in the claim.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andy S. Rao whose telephone number is (703)-305-4813. The examiner can normally be reached on Monday-Friday 8 hours.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chris S. Kelley can be reached on (703)-305-4856. The fax phone numbers for the organization where this application or proceeding is assigned are (703)-308-6606 for regular communications and (703)-308-6606 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)-305-4700.

Andy S. Rao
Primary Examiner
Art Unit 2613

ANDY RAO
PRIMARY EXAMINER

asr
January 9, 2004